

AMENDMENTS TO THE SPECIFICATION

Please replace the fifth paragraph of page 1 with the following amended paragraph:

The system according to the prior document mentioned also comprises ~~speech~~voice recognition means for sending to the microprocessor signals representing the content of voice messages uttered by a person, and pulse-generating means associated to the animal's head, which receive from the microprocessor the aforesaid signals representing the content of voice messages and send corresponding pulses to the animal's brain.

Please replace the paragraph bridging pages 4 and 5 through the paragraph bridging pages 5 and 6 with the following amended paragraphs:

The system 1 further comprises ~~voice~~speech recognition means 7, which receive a voice message uttered by a person 8 and issue output signals 9 received by the unit 3. According to an important feature of the invention the unit 3, depending on the type of signal 9 received, activates a generator of radioelectric waves 10; the signals issued by the generator 10, corresponding to the voice message uttered by the user 7, are sent directly to the animal's brain. The technique used for sending signals from the generator 10 directly to the animal's brain, without any artificial guide, can be of any known type (radiofrequency, microwaves, ultrasounds, voice-FM). For instance, in a possible embodiment the generator 10 works with radiofrequency, so as to modulate a steady-state frequency at about 15 KHz with signals varying from 300 Hz to 4 KHz; the output result is an approximately steady-state tone incorporating a non-audible signal, which however can be perceived directly by the animal's brain. Techniques like the one mentioned

above are used for instance for inserting subliminal messages into audio communications or in the field of radio-hypnosis.

In other words, therefore, depending on a signal 9 representing a voice message of the person 8 received and decoded by the means 7, the unit 3 controls the generator 10 so that the latter issues a suitable radioelectric signal that directly reaches the animal's cerebral area, in order to stimulate the execution of given actions or to have given feelings. Said operating mode of the system according to the invention is schematically shown in FIG. 4.

The ~~voice~~speech recognition means 7, comprising an electronic circuit integrated into a microphone or a microphone matrix, convert in per se known ways a PCM (pulse Code Modulation) digital audio signal into a corresponding graph of frequency component amplitudes. The ~~voice~~speech recognition means 8 are also associated to a second database (for instance encoded into a convenient area of the storage means 5) containing several thousands of sample graphs, which identify different types of sounds the human voice can produce; indeed, therefore, the input sound getting into the system is identified by relating it to the type of pre-stored sound which is closer to the one under examination.

In practice, therefore, when the microphone mentioned above detects sound waves, these are processed by the ~~voice~~speech recognition means 7, which select and encode useful sounds; the corresponding codes are sent to the generator 10, which converts said codes into radioelectric signals directly stimulating the animal's cerebral fibers. The animal thus hears almost simultaneously the human voice and the radiofrequency signal, thus associating the two stimuli (as in a sort of Pavlov's conditioning) and getting to understand human language.

Please replace the third paragraph of page 6 with the following amended paragraph:

Also in the case of the present invention it is provided for a system "teaching" period, in order to achieve a correct configuration of the neural network, which is necessary for an accurate operation of the ~~voicesspeech~~ recognition system. Said teaching period is also necessary for correctly relating the signals 4 to the corresponding stimuli-events-actions-feelings-behaviors of the animal, in order to issue an audio message by means of the loudspeaker 6, and for correctly linking the radioelectric waves produced by the generator 10 to the corresponding voice message uttered by the person 8.

Please replace the first full paragraph of page 7 with the following amended paragraph:

With reference to the second aspect, a series of basic words or sentences are recorded into the storage means 5 of unit 3 through the ~~voicesspeech~~ recognition means 7. The vocalization of these words/sentences is associated to specific actions which the dog has to perform and their utterance is controlled by the person 8, who here again acts as supervisor or instructor, through the neural network implemented into the system control logic. The algorithms of the neural network shall determine the best relation between the voice input provided by the person 8 and the output of the generator 10.

Please replace the first paragraph of page 8 with the following amended paragraph:

According to an important feature of the invention, the presence of the neural network control system and of the ~~voicespeech~~ recognition system 7 enables unit 3 to perform a self-learning logic, in which the animal develops little by little its own language with an evolutive process, through the interactive loop brain-sensors 2-loudspeaker 6-microphone-generator 10-brain, i.e. by listening through the means 7 and the loudspeaker 6 to the vocalizations it issues in association to the reactions to the environment; the instructor 8 can correct or acknowledge with his/her own voice messages the correctness of the voice messages issued by the loudspeaker 6 on the basis of the signals 4 (as shown by blocks 6-7 of FIG. 3, together with blocks 4-5). On the other hand, as was already said, the computer-assisted processing of the audio signal received by the ~~voicespeech~~ recognition system or language processor 7, converted into radioelectric waves having different frequencies and amplitudes, can directly reach the animal's brain, as shown in FIG. 4. It is thus possible to make available to the cerebral cortex the fundamental information characterizing the acoustic structures of spoken language (frequency, intensity, tone, intonation), and so the brain can send signals to the vocal cords uttering in their turn sounds/vocalizations. Through a self-forming process, made possible by the peculiar plastic character of the brain, the animal spontaneously learns to control its own voice. Indeed, the dog's brain controls the micro-loudspeaker 6 and learns how to make uttered sounds similar to those received from the instructor 8; the latter directly intervenes in the loop on the communication system when the animal's brain alone is not sufficient for a correct learning process.